APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
NATNAEL, PAULOS M

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 04/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/726,819	MOGRE ET AL.
	Examiner	**Art Unit**
	Paulos M. Natnael	2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

     4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

     If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

     a)☐ All b)☐ Some * c)☐ None of:

         1.☐ Certified copies of the priority documents have been received.

         2.☐ Certified copies of the priority documents have been received in Application No. _____ .

         3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

     * See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

     a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)   4)☐ Interview Summary (PTO-413) Paper No(s). _____ .

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)   5)☐ Notice of Informal Patent Application (PTO-152)

3)☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *1* .   6)☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims **1-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Citta et al., U.S. Pat. No. 5,583,889 in view of Yi, U.S. Pat. No. 6,094,427.

Considering claim **1**, Citta et al. discloses the following claimed subject matter, note;

a) a frame formatter configured to format a transport stream to produce a block stream

is met by the Data Source which data is "arranged in a frame format wherein each

frame comprises a plurality of data segments each including a plurality of groups of

interleaved data symbols". (see Abstract)

b) an error correction encoder configured to encode said block stream to produce an

error protected block stream, is met by Reed Solomon Encoder 26, fig. 2A, "for forward

error correction coding" (col. 3, lines 34-35)

c) an interleave module configured to interleave said error protected block stream to

produce a data stream, is met by Byte Interleave 28 and symbol Interleave 30, fig. 2A;

e) a bit-to-symbol mapper configured to map said encoded stream to produce a symbol

stream capable of at least eight different symbols, is met by Mapper and Sync Inserter

34, fig. 2A;

f) a modulator configured to modulate said symbol stream, is met by Modulator 36, fig.

2A;

Except for;

d) a turbo encoder configured to encode said data stream to produce an encoded

stream,

Regarding d), Citta does not specifically disclose a **Turbo** Encoder. However,

Citta discloses a Precoder and a Trellis Encoder 32, fig. 2A, which converts the 2-bit

symbols to 3-bit symbols. (col. 3, lines 60-63) Furthermore, Citta discloses a

convolution encoder 32b (Figs. 4 and 24A). Turbo encoders are known as

concatenated convolutional coders in the art.

In that regard, Yi, for example, discloses a Turbo Encoder 502, which includes

interleaver 601, encoders 602A and 602B, Puncturer #1 603A, and Puncturer #2 603B,

Fig.6;

Therefore, it would have been obvious to the skilled in the art at the time the

invention was made to modify the system of Citta by replacing Citta's Precoder and

Trellis Encoder 32 with that of Yi's Turbo Encoder 502, in order to minimize channel

noise and fading, and make the operation of the system more efficient and reliable.

Considering claim **2**, the system according to claim 1, wherein said transport stream

defines two high definition television programs substantially simultaneously is inherent

in broadcast transport streams, i.e., they are capable of carrying two or more HDTV

programs.

Considering claim **3**, the system according to claim 1, wherein said turbo encoder comprises: a first systematic encoder configured to encode said data stream to produce a first redundant stream; a bit interleave module configured to interleave said data stream to produce a second data stream; and a second systematic encoder configured to encode said second data stream to produce a second redundant stream.

Regarding claim 3, see rejection of claim 1 (d).

Considering claim 4, the system according to claim 3, wherein said turbo encoder further comprises, a puncture module configured to puncture bits from said first redundant stream and said second redundant stream to produce a redundant portion of said encoded stream.

Regarding claim 4, see rejection of claim 1(d).

Considering claim 5, the system according to claim 1, further comprising: a synchronization inserter configured to insert a synchronization signal into said data stream is met by Mapper and Sync Inserter 34, Fig.2A;

Considering claim 6, Claim 6 is a method claim of Claim 1 and, therefore, Claim 6 is rejected for the same reasons as in Claim 1

Claims **7-10**, are method claims of Claims **2-5**, respectively and, therefore, Claims **7-10**

are rejected for the same reasons as in Claims **2-5**.

Considering claim **11**,

a) a demodulator configured to demodulate a signal to produce a symbol stream

capable of at least eight different symbols, is met by the Tuner/Demodulator/A/D

converter 40, Fig.2A;

b) a converter configured to convert said symbol stream into an encoded stream is met

by Post Coder 48, Fig.2A;

d) a deinterleave module configured to arrange said data stream into an error protected

block stream, is met by Symbol Deinterleaver 52 and Byte Deinterleaver 54, fig. 2A;

e) an error correction decoder configured to decode said error protected block stream

into a block stream, Reed Solomon Decoder 56, fig.2A;

    Except for;

c) a turbo decoder configured to decode said encoded stream to produce an data

stream;

f) a formatter configured to format said block stream into a transport stream.

Regarding c), as mentioned above, Citta doesn't specifically disclose a turbo

decoder; although Citta discloses convolutional encoder 32b, (Figs. 4 and 24A).

However, Examiner takes an Official Notice here in that Turbo encoders and decoders

are well known the art, and therefore, would have been obvious to the skilled in the art

at the time the invention was made to modify the reference of Citta by replacing the

Decoder with the well known Turbo decoder, in order to minimize the effect of noise and

signal fading and make the operation of the system more efficient.

Regarding f), Cetta does not disclose a separate data formatter. However, Cetta

et al. discloses a Data Source which data is "arranged in a frame format wherein each

frame comprises a plurality of data segments each including a plurality of groups of

interleaved data symbols". (see Abstract) It is well known in the art also that any data

must be formatted before being displayed or further processed.

Therefore, it would have been obvious to the skilled in the art at the time the

invention was made to modify the system of Citta by providing a data or frame formatter

in order to efficiently and easily display the image or process the data further.

Considering claim **12**, the system according to claim 11, wherein said signal defines two

high definition television programs substantially;

Regarding claim 12, See rejection of claim 2;

Considering claim **13**, the system of claim 11, wherein said turbo decoder

comprises: a plurality of decode modules configured to decode said encoded stream to

produce said data stream;

Regarding 13, see rejection of claim 11 (c).

Considering claim **14,** the system according to claim 13, wherein said turbo decoder

further comprises: a depuncture module configured to depuncture a redundant portion

of said encoded stream.

Regarding 14, see rejection of claim 11 (c).

Considering claim **15,** the system according to claim 13, further comprising:

a synchronization remover configured to remove a synchronization signal from said data

stream.

Regarding claim 15, Cetta et al. does not disclose synchronization remover

configured to remove a synchronization signal from said data stream. However,

Examiner takes Official Notice in that removing synchronization signals or other symbol

from a stream of data is well known in the art, and therefore, would have been obvious

to the skilled in the art to modify the Cetta reference by providing a sync removing

method so as to make the system more efficient.

Considering claim **16**, Claim 16 is a method claim of Claim 11 and, therefore, Claim 16 is rejected for the same reasons as in Claim 11.

Claims **17-20**, are method claims of Claims **12-15**, respectively and, therefore, Claims **17-20** are rejected for the same reasons as in Claims **12-15**.

Conclusion

3.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rhee, U.S. Pat. No. 6,201,563 discloses a trellis code modulation decoder structure for advanced digital television receiver.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paulos M. Natnael whose telephone number is (703) 305-0019. The examiner can normally be reached on 6:30am -3pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on (703) 305-4795. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703) 305-

4750.

Paulos Natnael
April 18, 2003

Pnn

JOHN MILLER
SUPERVISORY PATENT EXAMINER
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